Taiwanese Journal of Obstetrics & Gynecology 54 (2015) 84–85

Contents lists available at ScienceDirect

Taiwanese Journal of Obstetrics & Gynecology

journal homepage: www.tjog-online.com

Research Letter

Laparoscopic hysterectomy with a handheld robotic device in a case of uterine sarcoma

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ARTICLE INFO

Article history:
Accepted 1 November 2013

The use of minimally invasive surgical techniques constitutes the most important advance in reducing surgical morbidity in gynecologic oncology over the past 15 years. Patients treated laparoscopically have less intraoperative blood loss, less postoperative pain, and shorter hospital stays, compared to patients treated by laparotomy [1]. The use of robotic surgery for the management of gynecological malignancies allows cancer-bearing organs and tissues to be removed using sophisticated surgeon-manipulated minimally invasive robotic surgical instrumentation. Robotic surgery has expanded the potential cohort of women eligible for minimally invasive surgery such as obese patients and patients with multiple comorbidities [2]. Robotic surgery is quickly replacing traditional laparoscopy in many gynecologic oncology practices because it can improve the quality of life of gynecologic cancer patients by reducing surgical morbidity [3].

Kymerax device (Terumo Europe España SL, Madrid, Spain) is a new robotic-driven, articulating, handheld laparoscopic device that improves triangulation while preserving precise motions. This system consists of a generator connected to interchangeable handles and instruments. The Kymerax device (Terumo) was first used for gynecological surgery in 2012 [4], although we report the first clinical use of the Kymerax device (Terumo) in gynecological laparoscopy for malignant disease. We present in this paper an unusual case of laparoscopic hysterectomy and bilateral oophorectomy for uterine sarcoma treated by using this new handheld robotic device.

A 59-year-old multipara woman with a body mass index of 25.4 kg/m^2 presented at La Paz University Hospital (Madrid, Spain) with postmenopausal metrorrhagia. Several years earlier, the patient had undergone a laparoscopic tubal ligation and a colporrhaphy because of uterine prolapse. A routine ultrasonography revealed moderate endometrial thickening. A hysteroscopy revealed a 3-cm polyp with hemorrhagic changes. The biopsy of the polyp showed a low-grade endometrial stromal sarcoma with necrosis and the following tumor markers: positive for CD10, WT1, and vimentin; negative for actin, desmin, and cytokeratin; positive for estrogen and progesterone receptors and for Ki67 (20%). The computed tomography scan and magnetic resonance imaging showed an endometrial lesion on the left horn of the uterus, but no secondary extension. Findings were compatible with a International Federation of Gynecology and Obstetrics (FIGO) stage IA endometrial neoplasm [5].

The patient underwent a laparoscopic hysterectomy and bilateral oophorectomy using three 12-mm ports (1 for the umbilical and 1 in each flank), a RUMI uterine manipulator (Cooper Surgical, Shelton, CT, USA), monopolar scissors, bipolar forceps, and handheld robotic device. The vaginal cuff closure was performed by 0-Vicryl running sutures with intracorporeal knots using the new handheld robotic device (Figs. 1 and 2). The surgery time was 80 minutes and the estimated blood loss was 180 mL. The pathology

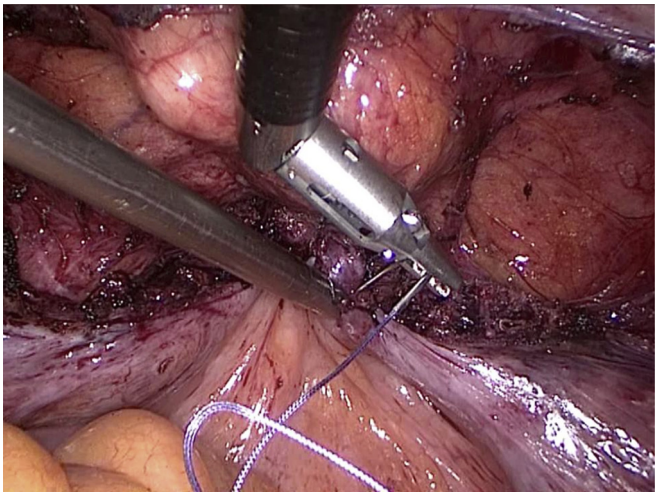

Fig. 1. Vaginal cuff suturing with the handheld robotic device.

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http://dx.doi.org/10.1016/j.tjog.2014.11.013

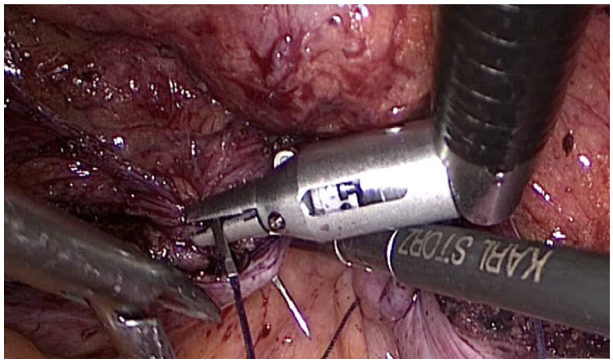

Fig. 2. The Kymerax device allows for a more accurate positioning of the needle, which cannot be achieved with traditional instruments for certain procedures such as during vaginal cuff suturing.

report confirmed the diagnosis of FIGO stage IA endometrial stromal sarcoma. Her postoperative recovery was uneventful and the patient was discharged 48 hours after the surgery. After 13 months of follow-up, the patient remains asymptomatic.

The Kymerax device (Terumo) is used for laparoscopic surgery and provides some benefits, compared to traditional laparoscopic instruments such as more precise movements because of its greater flexibility. This device may also allow for a faster surgical procedure. In addition, the increased maneuverability permits easier access to otherwise difficult areas, thereby reducing the risk of potential mistakes and complications. These factors may all result in a reduced hospital stay.

This robotic device has already been successfully used in urological surgery. Its first clinical use in benign gynecological surgery has been recently published—last year, Hackethal and colleagues [4] performed a laparoscopic hysterectomy in a patient with a medical history of benign metrorrhagia.

The Kymerax device (Terumo) uses 12-mm ports, although this has no effect on postoperative pain, hospitalization time, or esthetics outcomes. The operative time in our patient was 80 minutes, which is comparable to the time required for conventional laparoscopy (75 ± 21 minutes), but less than the time for robotics surgery (106 ± 29 minutes) [6].

To our knowledge, this is the first clinical use of the Kymerax device (Terumo) for the management of malignant pathology in gynecological laparoscopy. We found this device useful for oncological procedures because it allowed for more accurate movements and better results in a complex surgery. This device facilitated intracorporeal suturing with the same surgery time and characteristics of conventional laparoscopy.

Conflicts of interest

The authors have no conflicts of interest relevant to this article.

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